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ABSTRACT

A description of the University of Wisconsin's Professional Development Degree (PDD) program, a post-baccalaureate degree program designed to bring various opportunities for learning to the practicing engineer, is provided. The primary objectives of the program are: (1) to expose the professional to subjects necessary to combat obsolescence, (2) to keep abreast of the latest techniques in one's field, and (3) to assist the engineer in assuming changing job responsibilities. Developed as a continuing education program, the PDD program requires a bachelor's degree for admission, but no minimum grade point average. No residence requirements must be fulfilled, hence some program participants meet program requirements via correspondence. The small quantity of required courses in the program allows participants considerable latitude in pursuing personal choices in their respective technical course selections. The development, prerequisites, and description of the PDD program are provided, along with a survey of current and past participants in the program. (CP)

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PDD--INNOVATION IN POST BACHELOR EDUCATION

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INTRODUCTION

The University of Wisconsin's PROFESSIONAL DEVELOPMENT DEGREE (PDD) in engineering is a post-baccalaureate degree program designed to bring various opportunities for learning to the practicing engineer in a planned, recognized educational effort. Primary objectives are to expose the professional to subjects necessary to combat obsolence, to keep abreast of the latest techniques in his field, and to assist him in assuming changing job responsibilities. The program is formulated considering the candidate's family and job responsibilities, limitations on time away from job and geographical location.

This degree is not to be equated to the traditional MS or PhD programs. The PDD is primarily intended for those not intending to return to full time study. Further, many PDD candidates are involved in interdisciplinary type projects and are seeking broader type programs rather than technical specialities.

DEVELOPMENT OF THE PROGRAM

The concept for this program evolved in the late 1960's. At this time, the Department of Engineering, University of Wisconsin-Extension already had a strong continuing education program for engineers. In discussions with industry to improve the existing program, several important factors emerged:

1. Practicing engineers wish to have programs designed to their specific needs.
2. They need guidance in establishing objectives as well as identifying educational opportunities.

3. They want a structured plan. Engineers frequently take continuing education courses most convenient rather than those most important to their professional development.
4. They need refresher courses to update themselves in forgotten material.

A committee formed in the Department of Engineering, University of Wisconsin-Extension and the College of Engineering, University of Wisconsin-Madison studied these factors and developed the PDD concept. There were faculty concerns regarding competition for MS candidates; however, as previously discussed, there is little or no competition. There were concerns whether this should be called a degree program since traditionally continuing education is considered a part of professional responsibility. It was decided to be called a degree program to ensure sufficient University commitment and quality control. Subsequently, it has been found to motivate candidates by formally recognizing their efforts.

The program was approved by the faculty, administration, Board of Regents, and the Coordinating Council of Higher Education and was first offered to the profession in 1970.

PREREQUISITES

A B.S. degree in engineering from an accredited university is required. Degrees in fields closely related to engineering such as mathematics, physics, chemistry, and geology may also be acceptable. Applicants with other degrees may be accepted if they demonstrate basic

technical competence by passing the 16 hour written examination for professional engineering registration.

There are no grade point requirements; thus the program offers educational opportunities for the approximately 65 per cent of the engineering population who do not have the minimum grade point average required of many MS programs.

PROGRAM DESCRIPTION

To achieve this degree, 120 Continuing Education Units (CEU) are required. This equates to about 25 undergraduate semester credits. They may be accumulated through a variety of recognized educational formats, such as correspondence, evening and short courses, institutes, seminars, and independent study, as well as traditional on-campus credit courses. Half of the required hours must be satisfied from offerings of the University of Wisconsin; the other half may be transferred from other accredited schools or institutions.

The PDD program recognizes the possible need for (1) review and updating, (2) technical advancement, (3) increased professional responsibilities, and (4) broader general knowledge. The corresponding CEU requirements for each are shown in Table 1 (see next page).

Technical Updating Courses are used to review and update forgotten material. This prepares the candidate for more advanced work. Additionally, 14 CEU are awarded for registration as a professional engineer.

Technical Advancement Courses upgrade the candidate's technical competence and thus require a significant number of CEU.

Table 1

THE PROFESSIONAL DEVELOPMENT DEGREE

PREREQUISITIES

B.S. degree in engineering (or science)
No grade point minimum

REQUIREMENTS

	Continuing Education Units (CEU) Required
Technical Updating Courses Treating engineering fundamentals "refreshers" of prior studies & PE registration	24 Maximum (No Min.)
Technical Advancement/Upgrading Exploring technology developments in areas of current technical responsibility; training in new technical areas	36 Minimum
Professional Electives Technical and managerial topics supplementing previous training related to professional responsibilities; aimed to increase capabilities for assuming added responsibility	36 Guideline (No Min. or Max.)
Outside Interest Electives To broaden general knowledge; to better understand and identify role of engineering in relation to society and physical environment	24 Guideline (No. Min. or Max.)
TOTAL FOR DEGREE	120 Minimum

NOTES

No residence requirements.
Up to 60 CEU may be transferred from other institutions.
Up to 20 CEU need not be evaluated or examined.
Includes an INDEPENDENT STUDY PROJECT of about 20 CEU.

Professional Elective Courses expand the candidates administrative, managerial, financial, and legal background in accordance with his personal objectives.

Outside Interest Courses are an attempt for the professional to explore topics in a broader perspective. Typical subjects might include ecology, sociology, foreign languages, philosophy, or literature.

An independent study project (20 CEU) is required. This is usually included within either the technical advancement or professional elective areas. It is a project which explores a professional area in keeping with the candidate's objectives. It may be a unique design or feasibility study for an engineering project related to the candidates job.

STATUS OF PROGRAM

Since the program is not tied to a particular academic calendar exact totals for statistical purposes fluctuate depending on the time variable. There have been approximately 1500 inquires since the program began in 1970. From these about 350 applications have been received. Some applicants lacked the necessary prerequisites and others failed to follow up their applications. As a result there are now about 150 active candidates. To date there are five graduates with several others near completion.

A few candidates enrolled in the program immediately after receiving their bachelor's degree. The oldest candidate, on the other hand, received his degree 38 years prior to entering the program. The

average number of years since accepted candidates received a bachelor's degree is about 13.

About fifteen to twenty per cent of the candidates have M.S. degrees in either engineering or business administration. There are two candidates with a PhD background.

Candidates for the PDD are generally older and have different study habits and rates of absorption than conventional graduate students. Thus, it is hard to compare the difficulty of obtaining this degree with that of obtaining a traditional degree. The off-campus feature of this program presents problems in motivating the candidate not usually considered in traditional on-campus programs. Thus, although difficult to determine, the dropout rate is anticipated to be high.

Geographically, the majority of candidates are from Wisconsin. There are candidates, however, from about twenty other states and several foreign countries. The foreign candidates plan to satisfy the degree requirements entirely through correspondence and independent study.

CONCLUSION

The PDD program appears to be unique in its title, objectives, and operation. Although it is considered by many to be an open-university type degree program, it is designed primarily for the engineering profession and is a postbaccalaureate degree.

The PDD program, by setting up an educational schedule and establishing an achievement goal, motivates individuals to continue their education. Evidence of increased motivation has been seen, for example,

in correspondence study. An informal department study shows PDD candidates who are correspondence students have a completion rate almost three times that of the average correspondence student.

The program has been designed to be flexible so as to allow a candidate to change his educational direction when it appears to be in his best interests. With the changing nature of technology, many candidates change jobs during their program. As a result, their objectives change, and consequently their programs should change. Over 75 per cent of the PDD candidates have changed objectives and program direction since the date of their application.

For each candidate a transcript is maintained that includes all University of Wisconsin courses he has taken and other courses that are transferable to the program. These transcripts are very useful when supervisors are attempting to assign new responsibility, or when the candidate anticipates a job change.

Establishing year-by-year objectives cannot be overemphasized as a benefit of the program. Candidates understand the commitment that must be made and share in the decision to make that commitment. Having knowledgeable faculty as counselors in this process is one of the strong points of the program. It is difficult for the candidate to learn of all the educational opportunities that are available, and the faculty member can do a great deal in helping identify these programs. Establishing objectives is difficult for some people. The faculty advisor can help individuals understand more about this process.

The most important strength of the PDD program is that the course work is designed specifically to meet the individual's objectives. It is highly unlikely that any two candidates will have exactly the same program, because their objectives and backgrounds are different. With the thousands of jobs available for people with an engineering background, the Professional Development Degree program has a significant part to play in the fields of human development and continuing education.